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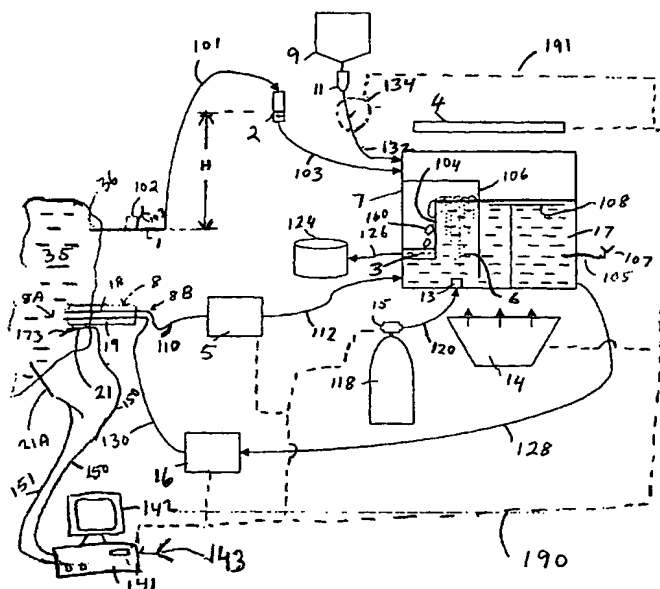
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For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: DEVICE FOR THE EXTRAVASCULAR RECIRCULATION OF LIQUID IN BODY CAVITIES



(57) Abstract: Biocompatible liquid is pumped into a body cavity (35) (eg. subarachnoid space, peritoneum, mediastinum, pleural space) by means of one pump (16) and removed from it by means a second pump (5), preferably via a double-barreled catheter (8) is used for insertion and removal of the liquid. An optional secondary catheter (1) removes liquid from a distal area of the body cavity. Temperature and pressure are sensed within the cavity and can be controlled by adjusting liquid flow rates. While outside the body, the liquid can be ultraviolet-sterilized, foam fractionated to remove contaminants, oxygenated and pH balanced, cooled or warmed, and augmented with exogenous liquid that may contain drugs.

# INTERNATIONAL SEARCH REPORT

International Application No

PCT/CA 03/01732

## A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 A61F7/12 A61M1/36 A61M25/00

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 A61M A61F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 01/39819 A (NEURON THERAPEUTICS INC ; SHOOK BRUCE (US); FRAZER GLENN (US); PELURA) 7 June 2001 (2001-06-07) page 7, line 17 - page 17, line 7; figures	1-9, 11-13
A	WO 01/58509 A (BAXTER INT) 16 August 2001 (2001-08-16) page 8, columns 10-22; figure 4	1-9, 11-13
A	US 2002/033181 A1 (WESTERBECK TODD L ET AL) 21 March 2002 (2002-03-21) paragraphs '0157! - '0163!, '0170! - '0174!, '0191! - '0194!, '0199! - '0202!; figures 2,5	1-9, 11-13
A	US 4 883 459 A (CALDERON REYNALDO) 28 November 1989 (1989-11-28) column 6, line 6 - column 8, line 59; figure 2	1-9, 11-13

☐ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

### \* Special categories of cited documents :

- \*A\* document defining the general state of the art which is not considered to be of particular relevance
- \*E\* earlier document but published on or after the international filing date
- \*L\* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- \*O\* document referring to an oral disclosure, use, exhibition or other means
- \*P\* document published prior to the international filing date but later than the priority date claimed

- \*T\* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- \*X\* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- \*Y\* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- \*G\* document member of the same patent family

Date of the actual completion of the international search

5 March 2004

Date of mailing of the international search report

11. 06. 2004

Name and mailing address of the ISA

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# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/CA 03/01732

## Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:  
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☐ Claims Nos.:  
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
3. ☐ Claims Nos.:  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

## Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

see annex

### Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-9,11-13

apparatus for modulating the temperature and pressure within  
a body cavity  
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2. claims: 14,15,10

device for the continuous removal of contaminants from a  
biological liquid drawn from a body cavity  
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3. claims: 16,17

double lumen cylindrical catheter  
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## INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No.

PCT/CA 03/01732

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
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